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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/827,046

04/19/2004

Brent R. Jones

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Patent Documentation Center
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EXAMINER

LIANG, LEONARD S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/827,046	Applicant(s) JONES ET AL.	
	Examiner Leonard S Liang	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification and Drawings

The lengthy specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and drawings.

Claim Objections

Claim 20 is objected to because of the following informalities: Claim 20 discloses “wherein the shapes of the first, second, and third nonlinear key elements are substantially identical to shaped elements of the insertion opening of the insertion opening.” The phrase “of the insertion opening” is repeated twice and seems to be redundant. Appropriate correction is required.

Claim 29 is objected to because of the following informalities: Claim 29 discloses “wherein aligning the inks stick insertion perimeter...” It will be construed that the claim should state “wherein aligning the ink stick insertion perimeter...” Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

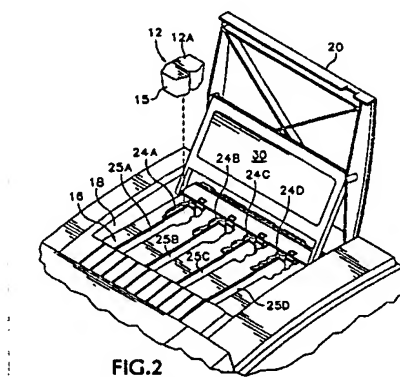
Claims 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Crawford et al (US Pat 5861903).

Crawford et al discloses:

- {claim 4} An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel (figure 2); an ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction (figure 2, reference 12); wherein the ink stick insertion perimeter includes at least three nonlinear key elements (figure 2, reference 12; if we count two humps on right perimeter side of ink stick as two separate key elements); wherein a first of the nonlinear key elements is along a first portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction (figure 2, reference 12; left perimeter side of ink stick); wherein a second of the nonlinear key elements is along a portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction (figure 2, reference 12; right side of ink stick); wherein the first and second nonlinear key elements do not intersect one another (figure 2, reference 12)
- {claim 5} wherein the ink stick insertion perimeter includes at least one linear perimeter segment between the first nonlinear key element and the second nonlinear key element (figure 2, reference 15)

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- {claim 6} wherein each of the nonlinear key elements has a shape substantially identical to the shape of a portion of the insertion opening of the solid ink feed system (figure 2, reference 24A)



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7-10, and 13-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford et al (US Pat 5861903) in view of Jones et al (US Pat 5510821).

Crawford et al discloses:

- {claim 1} An ink stick for use in a solid ink feed system of a phase change ink jet printer (figure 2); an ink stick body having a first perimeter shape (figure 2, reference 12); wherein the first perimeter shape comprises at least first, second, and third perimeter segments (figure 2, reference 12; we will designate the left

perimeter face as a first perimeter segment; the right perimeter face as a second perimeter segment; and the bottom perimeter face as a third perimeter segment); wherein the first and second perimeter segments intersect one another at a first corner, forming a first intersecting angle of other than 180° (figure 2, reference 12); wherein the second and third perimeter segments intersect one another at a second corner, forming a second intersecting angle of other than 180° (figure 2, reference 12); wherein the first perimeter segment includes a first non-linear key element (figure 2, reference 12); wherein the third perimeter segment includes a third non-linear key element (fig 2, reference 12); wherein none of the first, second, or third non-linear key elements encompass the first or second corners (figure 2, reference 12)

- {claim 2} apart from the key elements, the first, second, and third perimeter segments are substantially linear (figure 2, reference 12)
- {claim 3} wherein each of the first, second, and third non-linear key elements has a shape substantially identical to the shape of a portion of an insertion opening that provides access to the solid ink feed system (figure 2, reference 12, 24A)
- {claim 7} An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel (figure 2); an ink stick body adapted to be inserted in the insertion direction into the feed channel, and having an ink stick insertion perimeter in a plane substantially

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perpendicular to the insertion direction (figure 2, reference 12); wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments (figure 2, reference 12; left and right perimeter sides); wherein the ink stick insertion perimeter includes two substantially parallel end segments (figure 2, reference 12; top and bottom perimeter segments); wherein the end perimeter segments are substantially perpendicular to the lateral perimeter segments (figure 2, reference 12); wherein the ink stick insertion perimeter includes at least three nonlinear key elements (figure 2, reference 12; if we count the multiple humps on the right perimeter side of the ink stick as separate key elements); wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 12; left side); wherein a second of the nonlinear key elements is a second one of the lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 12)

- {claim 8} the lateral perimeter segments are substantially linear apart from the nonlinear key elements (figure 2, reference 12); the one end perimeter segment is substantially linear apart from the nonlinear key element (figure 2, reference 12)
- {claim 13} wherein the end perimeter segments are at least partially transverse to the feed direction (figure 2, reference 12; top and bottom sides of the ink stick)
- {claim 14} wherein the ink stick is adapted to be inserted into the feed channel with the lateral insertion perimeter segments substantially parallel to the feed direction (figure 2, reference 12; left and right sides of the ink stick)

- {claim 15} An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel (figure 2); an ink stick body adapted to be inserted in the insertion direction into the feed channel, the ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction (figure 2, reference 12); wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments (figure 2, reference 12; left and right sides of ink stick); wherein the ink stick insertion perimeter includes at least one end perimeter segment (figure 2, reference 12; bottom face); wherein the end perimeter segment is oriented at an angle with respect to the lateral perimeter segments (figure 1, reference 12); wherein the ink stick insertion perimeter includes at least three nonlinear key elements (figure 2, reference 12; if we call two humps on right side as separate key elements); wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 12); wherein a second of the non-linear key elements is on a second one of the lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 12)
- {claim 16} wherein as the ink stick is inserted in the insertion direction, the end perimeter segment is at least partially transverse to the feed direction (figure 2, reference 12)

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- {claim 17} the lateral perimeter segments are substantially linear apart from the nonlinear key elements; the end perimeter segment is substantially linear apart from the nonlinear key element (figure 2, reference 12)
- {claim 20} wherein the shapes of the first, second, and third nonlinear key elements are substantially identical to shaped elements of the insertion opening (figure 2, reference 12, 24A)
- {claim 21} wherein the stick insertion perimeter shape substantially matches an insertion opening perimeter shape (figure 2, reference 12, 24A)
- {claim 22} A solid ink feed system for a printer (figure 2); a longitudinal feed channel having an insertion end and a feed direction (figure 2, reference 25A); an insertion key plate having a key plate opening through it to provide access in an insertion direction to the feed channel (figure 2, reference 18, 24A); wherein the insertion direction is different from the feed direction (figure 2, reference 12); wherein the key plate opening has an insertion opening perimeter (figure 2, reference 24A); wherein the insertion opening perimeter includes two lateral opening perimeter segments and a transverse opening perimeter segment (figure 2, reference 24A); wherein the transverse opening perimeter segment intersects at least one of the lateral opening perimeter segments at an angle other than 180° (figure 2, reference 24A); wherein the insertion opening perimeter includes a first nonlinear key element on a first one of the lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 24A); wherein the insertion opening perimeter includes a second of the nonlinear key elements on a second one of the

lateral perimeter segments of the ink stick insertion perimeter (figure 2, reference 24A)

- {claim 23} the lateral opening perimeter segments are substantially parallel one another; and the transverse opening perimeter segment is substantially perpendicular to the lateral opening perimeter segments (figure 2, reference 24A)
- {claim 24} the insertion opening perimeter includes a second transverse perimeter segment (figure 2, reference 24A); the second transverse perimeter segment is substantially parallel to the first transverse perimeter segment (figure 2, reference 24A)
- {claim 25} the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and the transverse perimeter segment is substantially linear apart from the nonlinear key element (figure 2, reference 24A)
- {claim 28} ink stick (figure 2, reference 12); an ink stick body having a perimeter shape with two lateral perimeter segments and a transverse perimeter segment (figure 2, reference 12); first and second nonlinear key elements on the lateral perimeter segments correspond in shape and size to the first and second nonlinear key elements of the insertion opening perimeter (figure 2, reference 12, 24A)
- {claim 29} A method of inserting a solid ink stick into a feed channel of a solid ink printer (figure 2); providing an ink stick having an ink stick insertion perimeter (figure 2, reference 12); aligning the ink stick insertion perimeter with an insertion opening of a key plate (figure 2, reference 12, 24A); inserting the ink

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stick in an insertion direction through the insertion opening (figure 2, reference 24A); moving the ink stick in a feed direction in the feed channel, wherein the feed direction is different from the insertion direction (figure 2, reference 25A); wherein aligning the ink stick insertion perimeter with the insertion opening comprises aligning at least three non-linear key element shapes (figure 2, reference 12; if we consider humps on right perimeter side of ink stick as separate key elements)

- {claim 30} wherein at least one of the non-linear key element shapes is oriented substantially parallel to the feed direction (figure 2, reference 12; left and right perimeter segments of ink stick)

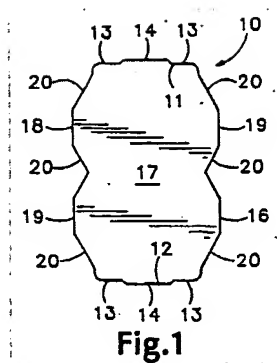
Crawford et al differs from the claimed invention in that it does not disclose:

- {claim 1} wherein the second perimeter segment includes a second non-linear key element
- {claim 7} wherein a third of the nonlinear key elements is on one of the end perimeter segments of the ink stick insertion perimeter
- {claim 9} wherein the first and third nonlinear key elements do not intersect one another
- {claim 10} wherein the second and third nonlinear key elements do not intersect one another
- {claim 15} wherein a third of the nonlinear key elements is on the end perimeter segment of the ink stick insertion perimeter

- {claim 18} wherein the first and third nonlinear key elements do not intersect one another
- {claim 19} wherein the second and third nonlinear key elements do not intersect one another
- {claim 22} wherein the insertion opening perimeter includes a third nonlinear key element on the transverse perimeter segment of the ink stick insertion perimeter
- {claim 24} the insertion opening perimeter includes a fourth nonlinear key element on the second transverse perimeter segment
- {claim 26} wherein the first and third nonlinear key elements do not intersect one another
- {claim 27} wherein the second and third nonlinear key elements do not intersect one another
- {claim 28} a third nonlinear key element on the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter
- {claim 29} wherein at least one of the non-linear key element shapes is oriented at least partially transverse to the feed direction

Jones et al discloses:

- {claim 1} wherein the second perimeter segment includes a second non-linear key element (figure 1, reference 14)



- {claim 7} wherein a third of the nonlinear key elements is on one of the end perimeter segments of the ink stick insertion perimeter (figure 1, reference 14)
- {claim 15} wherein a third of the nonlinear key elements is on the end perimeter segment of the ink stick insertion perimeter (figure 1, reference 14)
- {claim 22} wherein the insertion opening perimeter includes a third nonlinear key element on the transverse perimeter segment of the ink stick insertion perimeter (figure 1, reference 14)
- {claim 24} the insertion opening perimeter includes a fourth nonlinear key element on the second transverse perimeter segment (figure 1, reference 14; naturally suggested suggested since ink stick corresponding to key plate is disclosed)
- {claim 29} wherein at least one of the non-linear key element shapes is oriented at least partially transverse to the feed direction (figure 1, reference 14)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Jones et al into the invention of Crawford et al. The motivation for the skilled artisan in doing so is to gain the benefit of utilizing radii and

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minimal abrupt corners about the entire ink stick to minimize the opportunity for chipping

(column 2, lines 34-37). The combination naturally suggests:

- {claim 9} wherein the first and third nonlinear key elements do not intersect one another
- {claim 10} wherein the second and third nonlinear key elements do not intersect one another
- {claim 18} wherein the first and third nonlinear key elements do not intersect one another
- {claim 19} wherein the second and third nonlinear key elements do not intersect one another
- {claim 26} wherein the first and third nonlinear key elements do not intersect one another
- {claim 27} wherein the second and third nonlinear key elements do not intersect one another
- {claim 28} a third nonlinear key element on the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford et al (US Pat 5861903) in view of Jones et al (US Pat 5510821), as applied to claims 1-3, 7-10, and 13-30 above, and further in view of Rousseau et al (US Pat 5734402).

Crawford et al, as modified, teaches all limitations of the claimed invention except for the following:

- {claim 11} an ink stick guide feature for guiding the ink stick in the feed direction along the feed channel
- {claim 12} wherein the lateral insertion perimeter segments are substantially parallel the ink stick guide feature

Rousseau et al discloses:

- {claim 11} an ink stick guide feature for guiding the ink stick in the feed direction along the feed channel (figure 4, reference 28)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Rousseau et al into the invention of Crawford et al. The motivation for the skilled artisan in doing so is to gain the benefit of facilitating sliding of the ink stick down the ink chute (column 4, lines 50-53). The combination naturally suggests that the lateral insertion perimeter segments are substantially parallel the ink stick guide feature.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER
02/04/05